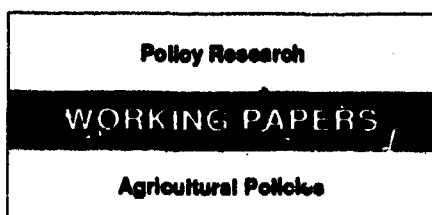


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# **Characteristics and Performance of Settlement Programs**

## **A Review**

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Settlement programs should be flexible and decentralized and should mostly allocate cropland to families, whose land rights must be clearly defined as ownership or long-term leases. If poor settlers are to benefit or succeed, settlement cannot be based on credit finance but must include grants.

This paper — a product of the Agriculture and Environment Division, Southern Africa Department — is part of a larger effort in the department to address land tenure issues in Southern Africa. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hans Binswanger, room I4-021, extension 31871 (October 1993, 40 pages).

The studies and cases reviewed by Kinsey and Binswanger suggest that settlement programs are too often designed on the assumption that all settlers will or can succeed. This has led to too much centralized administration and rigid designs, rather than reliance on decentralized approaches, flexibility in implementation, support for spontaneous settlement, and reliance on the settlers' own investment capacity.

Collective forms of crop production have not worked. Cropland is best allocated to individual families whose land rights must be clearly

defined as ownership or long-term leases. Farm sizes must be flexibly adjusted to skills, the availability of family labor, and the families' capital ownership. Settlers should therefore be allowed to sell or rent the land to other beneficiaries. If poor settlers are to benefit or succeed, settlement cannot be based on credit finance but must include grants.

Paternalistic constraints on the choice of crops or technologies, marketing, or participation in the labor force have usually not been enforceable or have had negative effects.

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# CHARACTERISTICS AND PERFORMANCE OF SETTLEMENT PROGRAMS:

## A REVIEW

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**Summary.**--The studies and cases reviewed suggest that settlement programs are too often designed on an assumption that all settlers will or can succeed. This has led to too much centralized administration and rigid designs, rather than reliance on decentralized approaches, flexibility in implementation, support to spontaneous settlement, and reliance on settlers' own investment capacity. Collective forms of crop production have not worked. Crop land are best allocated to individual families, and their land rights must be clearly defined as ownership or long term leases. Farm sizes have to be flexibly adjusted to skills, family labor availability and capital ownership of the families. Settlers should therefore be allowed to sell or rent the land to other beneficiaries. If poor settlers are to be benefitted and succeed, settlement cannot be based on credit finance but must include grant elements. Paternalistic constraints on crop choice, technology, marketing or labor market participation have usually not been enforceable or have had adverse effects.

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# CHARACTERISTICS AND PERFORMANCE OF SETTLEMENT PROGRAMS:

## A REVIEW

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## 1. INTRODUCTION

This paper examines the characteristics and performance of settlement and resettlement programs. We were prompted to undertake this review because of our interest in a possible land reform for South Africa, where the question is whether land belonging to about fifty thousand large scale commercial farms, and covering about 87 percent of the arable area of the country should be subject to land reform for the benefit of black and colored populations. As in other countries with highly dualistic farm size structures, the commercial farm sector is highly mechanized, and as a consequence, employs only relatively few workers (or labor tenants). Redistributing the farms to just these remaining workers will create farms which have too few family workers to operate efficiently without maintaining the current high degree of mechanization or hiring casual workers. The beneficiaries, however, are unlikely to be sufficiently wealthy or have access to subsidized credit which will permit them to hire the necessary workers or buy the required machines. In order to maintain or increase productivity of the distributed farms, additional beneficiary families will have to be resettled onto the farms. This approach is also necessary to extend the benefits of land reform to rural populations which are no longer resident on the commercial farms. Land reforms involving settlement are much more difficult undertakings than reforms of landlord-estate systems, where, as in most of Asia, ownership rights were transferred to tenants who were already in possession of the land, had implements and draft animals, and knew the local climate, soils and farming techniques. Only if the settlement component of the land reform program is properly designed can a land reform involving large scale commercial farms succeed.

The scope of our review, therefore, is the worldwide settlement experience, whether in the context of land reform or not and regardless of the administrative nature of the programs. The programs analyzed therefore include planned settlements executed by governments, private settlement by companies or social or religious groups, as well as the regularization of and support to spontaneous settlements or land invasions.

Resettlement with agricultural production as one of its core objectives has been undertaken

on every continent, creating a literature of great size.<sup>1</sup> As noted by Hulme (1988), much of the literature is fragmentary and idiosyncratic, reflecting the fact that there is no generally accepted methodological approach or theoretical basis for the analysis of resettlement schemes. He characterizes three broad categories of analysis: 1) conventional evaluations, the majority, are based on empirical approaches to scheme or policy performance; 2) the social consequences approach, as practiced mainly by sociologists and anthropologists, is concerned with the impact of schemes on individuals, families and communities; and 3) radical and political approaches, derived from theories of the role of the state in development.

We have examined a wide range of literature in all three of the categories identified by Hulme and have chosen to use the individual researchers', or government or agency officials', judgments of success rather than to impose from a distance our own interpretations of success or failure. Because the bulk of the literature comes from the first of Hulme's categories, assessments of performance here are unavoidably weighted heavily by the disciplines in which researchers have been trained--principally agriculture, economics, geography and public administration. Moreover, and it is an important qualification, evaluations in this category tend to present static descriptions and to gloss over processes and relationships. This deficiency cannot unfortunately be remedied by balancing conventional evaluations with those drawn from the social consequences literature, as there is too little of the latter to serve as an effective counterbalance. Finally, because the radical and political approaches generally eschew judgments about success or failure of the specific characteristics in which we are interested, this approach is least represented in what we have to say.

In addition to the individual studies we have drawn on reviews by other researchers' on institutional reviews such as those of World Bank assisted programs, and on some government documents.

**We also undertook a more detailed review of the characteristics of the following programs\***

- Burkina Faso** ▶  
river valley resettlement following onchocerciasis clearance
- Ethiopia** ▶  
imperial and post-revolution resettlement
- Guatemala** ▶  
resettlement based on a market-directed alternative to land reform
- Indonesia** ▶  
transmigration resettlement (both official and spontaneous)
- Kenya** ▶  
irrigated resettlement (pre- and post-independence)  
▶  
dryland resettlement (pre- and post-independence)  
▶  
spontaneous resettlement
- Malaysia** ▶  
official resettlement based on perennial crops and employment creation
- Zimbabwe** ▶  
irrigated resettlement (pre- and post-independence)  
▶  
dryland resettlement (post-independence)  
▶  
spontaneous resettlement

**We are seeking to evaluate individual characteristics of resettlement rather than pass definitive judgements on the success of the complete package of activities in resettlement**

programs. We distinguish two broad groups of interrelated variables:

The first group contains the *implementation characteristics* of resettlement such as: scale (overall size, average holding size and number of settler families); organization (public, private, spontaneous or mixed); sources of funding for land acquisition, infrastructure and credit; settler selection rules and practice; land allocation rules and practice; land rights (freehold/leasehold/tenancy, pledging, subdivision and inheritance); restrictions (crops grown, markets, employment and others); provision of infrastructure and speed of construction; access to and modality of supply of production services (credit, extension, tillage, irrigation, storage, marketing and transport); access to and modality of supply of social services (health, education, housing, water and sanitation); quality of the resource base (soils and water); cost per beneficiary family; grant elements (in land cost, infrastructure, credit and social services); cost recovery rules (for land, infrastructure, social services and credit); costs and timing of cost recovery; and the speed of formation, organization, autonomy of and participation in settler groups.

We want to evaluate the impact of the implementation characteristics on the second group of variables, the outcomes of resettlement. This group of outcome or performance variables includes yields and production levels; family income levels; asset accumulation and savings; consumption levels; poverty alleviation; responsive capacity; diversification of production patterns; land trading and reaggregation and/or subdivision of holdings; environmental impacts; stability of settlement; and sustainability of farming systems.

Very few if any settlements will be successful in all outcome variables. And very few studies contain details on more than one or two outcome variables. But since we are interested in the specific characteristics associated with success, and not in the package as a whole, even judgments of success in some dimensions will be illuminating.

Economic investigations often suffer from a severe lack of reliable data, and few evaluations cover more than one point in time. There is the additional difficulty of choosing an



appropriate time frame for studying resettlement. In the short- or medium-term, agricultural settlement projects that remain on a subsistence level will not generate many stimuli to economic development. Yet in the longer term, even projects of this nature may produce beneficial development effects by concentrating population in ways which allow growth opportunities to be realized in other economic spheres. Resettlement projects judged to have been successful in one or more dimensions appear to have passed through a series of 3-to-5-year stages of evolution in which settlers have adjusted to their changed circumstances in ways that affected performance and impact (Chambers, 1969; Colson, 1971; Moran, 1979; Scudder, 1973, 1975 and 1984; Scudder and Colson, 1979 and 1981; Keeschull, 1986).<sup>2</sup> Most of the evaluations we have examined are set however in static, cross-sectional frameworks.

## 2. CHARACTERISTICS AND PERFORMANCE

### *(a) Land tenure, allocation rules and practice*

The land tenure system defines rights and obligations with respect to acquisition and use of land in agricultural settlements, and the review of land settlement projects reveals that they incorporate a wide array of tenure systems, reflecting local customs, differing legal systems and specific program objectives.

It is clear on the basis of the review that no settlement program can succeed without a clear tenure policy. Four issues arise: 1) whether to allow for individual holdings of arable land or insist on collective methods of farming, 2) whether to grant permanent ownership rights or only usufruct rights, 3) whether to allow for sales and rental of land or to constrain land transactions, and 4) if land sales to outsiders are unrestricted, whether or not to issue title.

The record shows uniformly that collective forms of land use, where the farm is managed as a single large-scale unit and members receive labor points and profit shares, are associated

with very high failure rates.<sup>3</sup> This parallels the poor experience with collectives in the socialist world, where they have been or are being abandoned. World Bank-assisted irrigation projects in Mexico with collective farming and tenure performed poorly relative to those where land reform beneficiaries were given individual plots. Where beneficiaries of land reform or settlement schemes were organized as collective farms, as in Peru, Honduras, Nicaragua and Mexico, for example, they have most often subdivided the holdings informally. In Zimbabwe, collective cooperative settlements (Model B schemes<sup>4</sup>) are self-managed but showed poor group cohesion (Akwabi-Ameyaw, 1990). In a single year more than 20 percent of collective cooperatives disbanded, and new groups to take them over are hard to find (Zimbabwe, 1991). The one collective cooperative in Zimbabwe judged to be successful has in fact parceled out its land and operates as a quasi-Model A scheme, a smallholder model with nucleated settlements (Mumbengegwi, 1984). Resettlement in Kenya displayed a wide range of variants, among which was a pattern of private individuals and companies purchasing farms which subsequently did not succeed as large-scale units. These units were later subdivided and resulted in a pattern which resulted in a better match between farm sizes and household resources and managerial skills (Deininger and Binswanger, 1992).

Individual tenure on the arable portion of land is often combined with common ownership and management of pasture land and forest resources, as in the Mexican *ejido* system and Zimbabwe's Model A schemes. Little literature exists which deals with common property management in settlement projects.<sup>5</sup>

The review shows no clear advantage for ownership in contrast to secure usufructuary rights or long leases, so long as land rights are unequivocally spelled out. During an initial period, spontaneous settler communities in Bolivia often provide only for usufructuary rights which can be reallocated when unsuccessful settlers leave. These usufruct rights only harden to ownership rights over time, as under the *ejido* system in Mexico, where they now have been converted into full ownership rights. The Mexican irrigation systems were largely settled with *ejidatarios* who until recently only enjoyed permanent and inheritable rights of usufruct (Heath, 1992). The five-to-ten hectare plots of the schemes in Northwest Mexico were the

original home of the green revolution and have been associated with highly modern farming ever since. A positive example for leases is the experience of the Family Farms resettlement schemes in Zambia, where 14-year inheritable leases were granted to settlers very quickly (Bomford, 1973). China provides another case where the use of leases has been positive.

Technical efficiency and economic viability are best achieved by a program design that promotes individual landholding through the issue of freehold titles or other long-term usufructuary agreement. Despite the obvious association between security of tenure and success of settlement, there is an almost universal tendency to withhold title to ownership even where full private ownership is the intended legal framework. Formal documentation of usufruct rights is even more seldom achieved. Withholding title is often justified by the indebtedness of settlers to the land reform or settlement agency, even long after it is clear that the debt will never be recovered or inflation has reduced the debt to nominal amounts. Where title or clear rights have been withheld, this has perpetuated administrative approaches. Such was the case in Paraguay, where state land was allocated but titles were withheld for two decades, and in Burkina Faso, where the government remained unclear about its land ownership policy almost 20 years after settlement began (Murphy and Sprey, 1980). In the case of the Dandakaranya project in India, the failure to confer land ownership rights for as long as two decades after land allotment had been completed led to unrest and a mass exodus of settlers (Bose, 1983).

Associated with unclear definition of land rights and with the withholding of title or other documentation of usufruct rights are poor access to credit and a lack of investment--as in the cases of Burkina Faso, Costa Rica, Zimbabwe, Kenya and Indonesia--and an exacerbation of intergenerational problems. The experience of Kenya and Thailand shows that granting titles can be managed even where the agricultural sector is characterized by very large numbers of small holdings (Jones and Richter, 1982; Haugeraud, 1983; Scholz, 1986; Green, 1987; and Manshard and Morgan, 1988).

Constraints to sales of land in settlements are widespread. Where spontaneous settlements are carried out by communities, such as the Mennonites in Brazil or Bolivia, or the traditional

Indian groups and farmers unions in Bolivia, sales to outsiders are usually prohibited or sharply constrained, and such patterns should really be regarded as communal tenure systems. In these cases, land title provides little advantage for accessing official credit schemes, since alienability is restricted. On the other hand, sales and rental to members of the community are usually allowed.

In official settlement schemes there is a uniform tendency to outlaw sales and rental to outsiders as well as among the beneficiaries of the settlement schemes. Very often, the restrictions or conditions imposed on land rights and transactions are a reflection of the desire to retain tight administrative control over settlers. A common argument invoked is that without such conditions the settlers would either sell or pledge the land and thus become landless, or subdivide the land among their heirs and make the holdings uneconomic. Prohibitions on the rental or sale of land are however almost uniformly damaging since they lead to conflict and result in land being left idle. In Costa Rica, when land was abandoned by ploholders, no one else could use it. While being expected to forgo their rights to land in their area of origin, settlers in Zimbabwe not only are prohibited from selling or leasing their plots but also enjoy no intergenerational security of tenure on settlement land. The early emphasis on welfare objectives in the resettlement program resulted in significant numbers of destitute settlers who could not use all the land allotted to them and who, unless they rented or sold, became victims of "land-poaching" (Zimbabwe, 1991). Destitute settlers increasingly engage in illicit land sales and leasing. Restrictions on rental and sales can rarely be enforced and, if partially enforced, the regulations tend to create a climate of insecurity of tenure and lead to efficiency losses and idle land.

The evidence is overwhelming that static approaches to tenurial arrangements, if rigidly enforced, lead ultimately to stagnation, or if the administering authority lacks the power or will to enforce tenure regulations, to unrest and upheaval. Programs need to be deliberately designed as experiments, incorporating a range of possible approaches. One way to do this may be to configure the initial allocation so that not all the land is allocated, reserving some

to permit later flexibility, and allow rent, sale, transfer and subdivision. "Learning-by-doing" has often been invoked as a rule of thumb by resettlement agencies, which subsequently pursue rigid programs.

#### *(b) Scale of program*

There is little we can say about whether or not scale is associated with success. The literature gives equally positive ratings to programs as small as the Family Farms schemes in Zambia and as massive as the programs of the Malaysian Federal Land Development Authority (FELDA). Other large-scale programs, as in Ethiopia or the case of villagization in Tanzania, have been judged largely failures. More significant than physical scale appear to be the time scale for implementation, the flexibility in the program and the quality of staff involved with implementation. Rapid, overly ambitious implementation is always associated with failure in at least some dimensions and frequently involves costly and socially disruptive resettling of populations that have already been moved once.

#### *(c) Size of holding*

The size of the holding allocated to settlers is an important factor in attracting them and determining agricultural incomes. A recent review of the literature on economies of scale (Deininger and Binswanger, 1992) suggests that the area which a farm family can operate efficiently depends on the amount of family labor, the managerial skills of the farmer, the machines and capital stock owned by the farmer, and the access to credit markets. An approach based on these considerations was taken in the Family Farm settlements in southern Zambia, where holding sizes and the ratio between arable and grazing land were determined in response to each settler household's labor, livestock and initial capital endowment.

Few settlement programs however explicitly allocate land according to the factors discussed above. Instead two principles are frequently used to determine holding size: 1) farms must not be larger than settlers can cultivate (often using only family resources), and 2) farms

must be large enough to provide settlers with an income higher than they had previously but not so high that tensions develop between favored settlers and existing farmers. The review found that the resulting rules are often inflexibly employed. Extreme rigidities in land allocation have characterized the programs in Zimbabwe and Indonesia (Kinsey, 1983; Uhlig, 1984; Kebshull, 1986; Fasbender and Erbe). In contrast, FELDA in Malaysia has over more than two decades modified several times (in response to changing market prices and income-earning possibilities) the size of the "standard" holdings allocated to its settlers (Ogawa and Chan, 1985; Bahrin, 1988).

Excessive allocations of land to farmers with little family labor, poor farming skills and poor access to credit should therefore be expected to lead to poor results. In Sudan's Gezira Scheme, for example, many of the settlers became absentee landlords because the land allocated to them initially far exceeded the labor capacity of their families (Sabry, 1970). Additional evidence supporting the benefits to be gained from allocating relatively small holdings comes from the official low- and high-density settlement programs in Kenya. While the low-density schemes were on better land and required greater levels of capital assets and farming skills than did the high-density schemes, they returned lower levels of social profit. (In Kenya, the early studies of economic performance on resettlement schemes also demonstrated that smallholders could make more intensive use of land previously cultivated by large farms (von Haugwitz, 1972). One estimate put the increase in production arising from the shift from large to small farm units in the range of 15 to 90 percent (Deininger and Binswanger, 1992)). Similarly, in the higher potential areas of Zimbabwe, yields, production and incomes from the 5-hectare plots of arable land outstripped planners' conservative targets for Model A schemes. The Model B schemes, on the other hand, with an average size of more than 9.8 ha of mostly prime land, have been disasters (Zimbabwe 1991).

On the other hand, in Indonesia's resettlement schemes, two hectares of land were allocated for a long time based on an assumed irrigated rice paddy farming system, which did not develop in many of the programs (Hardjono, 1977). Under rainfed farming this amount of land was clearly insufficient. In Zimbabwe's lower-potential areas, where the "standard

holding" was unable to generate sufficient output, government reports show that growing numbers of settlers have been "illegally" extending their arable areas (Zimbabwe, 1991). Much the same response pattern was found in Indonesia (Fasbender and Erbe).

There is evidence both that larger holdings are more privately remunerative (Kenya and Malaysia) and evidence that smaller holdings are socially more profitable (Kenya) and lower-cost producers (Bolivia). The characteristic critically associated with success appears to be flexibility with respect to farm size. Flexibility is positively associated with the use of purchased inputs, lower levels of social conflict, greater income-earning possibilities, growth of mutual-help efforts, and fewer administrative problems. Nevertheless the literature reflects the fact that many rigid administrative systems do not respond to errors in farm size, but persist in allocating what has been found ineffective.

#### *(d) Type of scheme organization and administration*

Management and administration are important in determining a program's degree of success, and the review revealed a wide variety of patterns. A broad typology of styles of organization and administration includes the following:

► **Administered, official settlement.** The classic example here is Mexico's land reform, in which land was administered and settled over a 50-year period, with a top-down approach, and an enormous land reform bureaucracy which withheld title for decades.<sup>6</sup> Others include programs in Indonesia, Zimbabwe, Ethiopia, Guatemala, Burkina Faso and irrigated resettlement in Kenya. Typically, the administering authority is involved in every aspect of resettlement: from land acquisition through settler selection, to infrastructure and irrigation development, to extension, and to post-production activities.

Perhaps the most dominant and damaging characteristic in almost all the administered programs examined is excessive paternalism on the part of the administering authority and associated personnel. The adverse consequences of paternalism are worse when it is

centrally administered and less when administration is local. The costs of centrally administered paternalism are seen most vividly in the case of Ethiopia, but the evidence strongly suggests that central organizations perform rather poorly everywhere. Support for this claim is also found in the case of Indonesia, where resettlement performance improves when responsibility for administration is handed from the central agency to the provincial administration at the end of the first five years (Oey and Astika, 1978).

There have however been important differences in administrative style, and many of these differences have been generated as responses to the challenge of managing what are inherently multisectoral projects. In Zimbabwe, for example, the Ministry of Agriculture does the planning and technical preparation work, including land surveys and setting out plots. The Department of Rural Development of the Ministry of Local Government selects the settlers, moves them onto the plots and chairs the coordinating committee which then secures infrastructure investments, social services and agricultural extension from the ministries in charge. It also controls the development of rural service centers. In an effort to strengthen implementation capacity and avoid time-consuming attempts at coordination, Zimbabwe's major resettlement agency is currently seeking to expand its authority and control, in the face of resistance from other agencies with settlement-related roles, and to become a more centralized resettlement agency (Zimbabwe 1991). Land reform agencies in Central America have all attempted to become centralized multisectoral development agencies for their clientele, with very poor results. Such a centralized administrative approach was also implemented in Indonesia, but there the management was handed over to local authorities after the fifth year of each settlement project. In Malaysia, a centralized settlement institution has handled execution at the local level very effectively through the extensive involvement and collaboration of local government institutions, however the development of even more localized institutions suited to settler needs has been discouraged (Bahrin, 1988). Kenya largely managed to avoid the dilemmas involved in a centralized agency by 1) maximizing the involvement of existing local-level institutions and 2) using a task-force approach to staff a new, temporary, central task force through secondment of serving staff from other institutions.<sup>7</sup>



A comprehensive analysis of land settlement in Latin America is provided by Nelson (1973). In his examination of 24 schemes, he recognized five different categories: directed, semi-directed and spontaneous settlement, private land settlement schemes, and foreign colonization. His ranking of the 24 schemes indicates that directed settlement projects have the poorest performance record: "Few spheres of economic development have a history of, or a reputation for, failure to match that of government-sponsored colonization...the evidence is irrefutable" (Nelson: 265).

While many of the examples from the rest of the world confirm this view, Kenya's and Malaysia's cases show that the pitfalls of government-sponsored settlement can be reduced by strong involvement of local governments. The finite horizon of the Kenyan task force approach and of the Indonesian handover to local governments has avoided the emergence of perpetual paternalism characteristic even of the FELDA schemes in Malaysia or of Zimbabwe's open-ended commitments.

For the most part, paternalism is founded upon good intentions--the wish to see settlers do well and to shield them from excessive hardships in the early stages of the resettlement process. But these good intentions are also almost always linked to a profound failure to appreciate that continued control and coddling of settlers in the later stages of the resettlement process is more damaging than inadequate support in the earliest stages.

Paternalism is also however strongly linked to institutional self-interest and a profound misconception of the processes involved in making resettlement effective for the communities involved. The implicit idea appears to be that somehow resettlement programs can be successful only if administrative support is maintained.

Paternalism expresses itself in excessive constraints on settlers' decisions on production techniques and crop choices, land rental and sale, labor market participation, investment, and marketing. Several of these constraints are discussed in other sections of the paper. Some of the paternalistic rules arise because many of the agencies pursue a full-time

entrepreneurial farmer model, and seek to create small replicas of commercial farms or plantations. In Zimbabwe, for example, the concern with commitment to full-time farming went so far that, for more than a decade, settlers were prohibited from participation in the nonfarm labor market<sup>4</sup>. This commitment to the full-time farming model ignores the fact that the strategies of small farmers all over the world, including in the developed countries, involves the combination of farm and nonfarm sources of income within the same household. Given the severe credit constraints faced by small farmers, the insistence on several uncorrelated income sources must be considered a wise portfolio diversification.

A good example of concern-motivated paternalism is provided by the belief that settler-controlled purchases of inputs or sales of outputs would result in less favorable prices due to settlers' lack of experience and information. This same concern may reflect a wish to control the harvest fully as a way to ensure credit repayment or at least to know the precise credit repayment capacity of each settler. Such has been the case in the program of the *Fundación del Centavo* (FUNDACEN--also known as the Penny Foundation) in Guatemala, where settlers have so far been denied the knowledge and experience that would equip them to manage input purchases and commodity marketing themselves (Dunn, 1992). The FUNDACEN program has a very committed field staff but has not avoided paternalism, even though it is a private foundation. Indeed it appears that highly committed field staffs tend to design paternalistic approaches irrespective of their sectoral affiliation.

Technical staff often fail to understand that they are participating in a new and different system. Recognizing that settlers are to be encouraged in their new role as owners, lessees or other rights-holders, and treated as independent decision-makers who tend to do the best within the constraints imposed by nature, their limited assets and skills, and their access to markets. Instead, technicians often behave as if they were foremen or overseers for their institutions. In Zimbabwe, some resettlement officers have been accused of dictatorial behavior, while in Guatemala technical staff behave as if settlers could be "fired" for small or imagined infractions (Dunn, 1992).

► **Unauthorized or spontaneous settlement.** Some indication of the global importance of spontaneous settlement is given by a World Bank (1978) study which showed that almost 75 percent of new rural land settlement in the late 1970s was spontaneous settlement. There is far greater flexibility in spontaneous settlement, and a range of arrangements is possible for land acquisition. It is often the case that spontaneous settlers negotiate for land with existing farmers as in Indonesia, where land may be purchased, rented or acquired under traditional arrangements. Settlement is often community-based, as in the Eastern Lowlands of Bolivia, where the Mennonites purchase lands and then parcel it out to their members, and where highland Indian communities establish settlement outposts for some of their members in the unoccupied lowland forests (Solem *et al.*, 1985). A case of communities moving as a whole is provided by the Tangwena people in eastern Zimbabwe.

Pre-existing, self-selected settler groups tend to have strong cohesion and resilience, but they have by and large been prohibited from participating in official programs. In the case of Bolivia, for example, the approach was changed to admit such groups only after administered settlement failed. In Brazil, where the Mennonites carried out a resettlement program entirely on their own, their projects, as well as many private schemes, have been generally far more successful than public ones.

There have been numerous administrative responses to spontaneous settlers, or squatters, as they are often called. One has been the perpetuation of paternalistic systems in almost all cases except perhaps Kenya and Indonesia. In Costa Rica and Honduras, where hundreds of farms were taken over by syndicates of settlers, the administration's response was to incorporate these groups into the land reform program, expropriate and (partly) compensate the former landowners, and incorporate the settlements into the land reform agencies' paternalistic programs. Settlers were then prohibited from selling or renting their 5-to-10-hectare parcels. At the other extreme from such forms of ex-post regularization and conversion to official programs are overtly hostile responses, often practiced alike by colonial and post-independence governments, of burning and bulldozing settlers into at least a temporary withdrawal. A middle road is taken in Zimbabwe, where spontaneous settlers

have taken over pasture land and stream banks in existing resettlement schemes and undertaken preemptive settlement on new properties acquired for resettlement. Here political and social sensibilities have been paramount, and only after a decade of handling rural squatters with fastidious concern have attitudes shifted toward hostility on the part of official settlement agencies and beneficiaries of official settlements.

Despite the very high costs associated with so many official programs, there appears to have been no comparative, ex-post, cost-benefit analysis of spontaneous settlement. In part this lacuna reflects the fact that few public resources were used by the spontaneous settlers, but it can be assumed that private individuals or communities would not continue to expend resources if they were not reaping positive returns. Even less work has been done on the self-management capabilities of spontaneous, or private sector settlements. The experience of Brazil, Paraguay and Bolivia seems to be very positive in this regard (Solem *et al.*, 1985; Ozorio de Almeida, 1992), but more systematic enquiry is needed into the conditions which are required for community-based management of settlements.

► **Assisted, spontaneous settlement.** One alternative to administered settlement is to allow land to be invaded and then to regularize the occupiers.<sup>9</sup> Indeed, spontaneous settlers sometimes seem to opt for the self-managed route as a remedy to avoid defects in administered schemes. In other cases spontaneous settlement frequently follows in the tracks of official settlement, often eventually surpassing official settlement in importance and success, as in the case of Indonesia (Hardjono, 1986; Scudder, 1986). In Kenya, it has been argued that large-scale spontaneous settlement was a direct consequence of the official programs (Mbithi and Barnes, 1975; Leo, 1984; Mwagiru, 1986). A logical extension of these experiences is to design programs which provide selected infrastructure, land regularization and agricultural services to spontaneous settlers. Such a strategy has been pursued with apparent success in Bolivia after the directed settlement approach failed, was abandoned by external funding agencies and was unable to get domestic budget support. Assisted, spontaneous settlement has also achieved considerably more success than official settlement programs in Zambia.

Assistance before and after settlement may come from either private or public organizations, or both. In the case of the Family Farms settlements in Zambia, for example, success was achieved in enabling former squatters to become productive settlers by coordinating--through a nongovernmental organization--inputs from the government and expertise and resources from a commercial bank (Bomford, 1973; Kinsey, 1979).

#### *(e) Combinations of Settlement with Contract Farming*

Some of the classic plantation crops lend themselves very well to resettlement where forms of contract farming may be practiced. Because of the need to coordinate closely production and processing, sugar lends itself either to contract farming, as in some of the irrigated resettlement in Zimbabwe's lowveld, or a core estate which provides opportunities for nearby settlers to supplement their income through seasonal wage labor (Kelly, 1972; World Bank, 1984; Stanning, 1984; Rukuni, 1988). Contract farming approaches have worked well in the case of tea in Kenya and settlements involving palm oil in Malaysia. Settlement agencies have operated successful contract farmer schemes in the Gezira scheme in Sudan and in Zimbabwe. On the other hand, the weak performance of Zimbabwe's Model C tobacco-growing schemes suggests that contract farming alone cannot circumvent other problems (Zimbabwe 1991). FUNDACEN successfully uses contract farming models for vegetable production in its Guatemala settlements (Dunn 1992). Dairying also displays potential as a productive activity for resettlement; it has been highly successful in the Nandi medium-scale resettlement areas northwest of Nairobi in Kenya (Metson, 1979) but has been plagued with problems when implemented in the form of a Model C scheme in Zimbabwe.

#### *(f) Modalities of land acquisition*

Where land for settlement is not owned by governments, as in the case of Bolivia or can be acquired under customary law, as in Indonesia, land acquisition presents no major problem. Elsewhere the government must acquire the land either by purchase at market prices or expropriate the land as part of a land reform program with no, partial, or full compensation.

Alternatively, land must be purchased by communities such as the Mennonites, by nonprofit organizations such as FUNDACEN, or by private settlement companies. There is no evidence that the mode of acquisition, or the level of compensation paid has a strong impact on the ultimate performance of settlements.

However the level of compensation required either from government or nongovernment purchasers strongly influences the scope of the settlement programs, since budgets for resettlement programs are often sharply constrained. As discussed in Binswanger, Deininger and Feder (1992), only a fraction of the land costs can be expected to be recovered from poor settlers if compensation is paid at the market price of land. The requirement of a grant component together with limited budget allocations have confined land reform and settlement programs in Costa Rica, Honduras, Guatemala and Brazil to very small areas. British budget resources were used to finance land purchases in the Kenyan case, and in Zimbabwe the British government's share in resettlement programs was 50 percent of all settlement costs, allowing for greater scope, if not necessarily for greater speed (Leo, 1984; Cusworth and Walker, 1988).

#### *(g) Settler selection rules and practice*

Settlement is a difficult process in which the settlers must adapt to new environments and at the same time create productive enterprises. Failure is common and dropout rates can be high. To deal with the consequences of dropout requires greater flexibility in land allocation, as discussed in the previous section. Better settler selection can reduce later dropout, even though it cannot eliminate it.

Issues of settler selection arise in relation to directed, spontaneous and private resettlement. Of course, in the case of spontaneous or private settlement, it is the individuals or the communities which do the selecting themselves. Relying on such self-selection is likely to lead new communities which are more socially representative and cohesive than those which might be created through rigid application of a narrow set of criteria. But what has received

most attention in the literature, even though few generalizations flow from it, is selection in official resettlement programs. It is this experience therefore that we draw upon here.

A point-scoring system has been adopted by FELDA in Malaysia and is under consideration in Zimbabwe. The specific traits desired in resettlement communities are clearly spelled out and defined objectively. The value of a scoring scheme depends on how closely the scoring variables are related to ultimate settler success. The following traits are most commonly taken into consideration in such scoring systems.

Selection criteria	Performance outcome
Age	Experience shows those aged under about 45 are generally the most successful.
Education	There is strong evidence that better-educated settlers are more successful than those less-well-educated.
Family labor force	Agricultural and economic performance is strongly positively associated with the number of family members able to work.
Marital status	Married settlers almost invariably outperform those not married.
Farming experience and skills	A background which includes farming experience and skills is strongly predictive of good performance.
Capital assets	There is no consistent evidence in favor of selecting as settlers those who already have capital or assets. Settlers who have gone into schemes well-equipped have fared no better than those who have had little. In otherwise sound projects, capable settlers seem able to accumulate capital and acquire assets remarkably quickly.

Nationality	No clear evidence.
No prior criminal record	No clear evidence.

Although we found no consistent evidence to favor selection as settlers of those with capital, we did find fairly consistent evidence that choosing settlers with an excessive emphasis on equity leads to problems. It seems to be a fact of life that agricultural settlement schemes, except in special circumstances, do not make good welfare programs. While the landless may be able to make good use of the new resources provided by settlement, the elderly, the sick and disabled, and those with an inadequate labor force are unlikely to do so, hence there needs to be a careful balance between suitability and need.

In the point-scoring scheme used by FELDA in Malaysia, the set of basic criteria have remained largely unchanged over time, but the weights attached to different levels of each criterion have changed frequently (Bahrin, 1988). Thus weights might be changed, for example, to favor those with particular skills where experience was indicating that these skills were in short supply in schemes, or weights could be altered to give preference to younger candidates where unemployment among school-leavers had assumed a higher priority.

One other point should be made here. Where formal selection procedures are employed, it seems important that they incorporate a briefing for would-be settlers. Problems have arisen in every case examined where settlers went into schemes with unrealistic expectations as to what was involved in resettlement or how long it would take for incomes to reach certain levels.<sup>10</sup> Those who are most disillusioned are usually the first to leave.

#### (h) *Restrictions imposed on settlers*

It is commonplace to find that, in addition to restrictions imposed on dealings in land, settlers



are almost always subjected to rules and regulations affecting what crops they can grow, how they can grow them, when and where they can sell the produce, for whom they can and cannot work, where and how they can build their houses, and so on. We found no single case where rules limiting purchasing of inputs and marketing of outputs had a positive impact. In Guatemala, for example, settlers have been denied the opportunity to develop skills and acquire knowledge that will be vital to their success as independent operators (Dunn, 1992). Except for those growing horticultural products, scheme administrators have insulated settlers from anything that looks like a market.

Restrictions on crops that may be grown are so frequently ignored, in whole or in part, that one is surprised to see them reappear in one new project after another. Except where the restrictions have a sound market or agronomic foundation, such as the need to meet certain rotational requirements, for example, settlers tend to grow the crops that meet the requirements of their families and find a ready local market. The experience of the AVV (*Autorité des Aménagements des Vallées des Volta*) in Burkina Faso shows this very clearly (Murphy and Sprey, 1980; McMillan, Painter and Scudder, 1990). Where administrators have managed to enforce restrictions, as in Guatemala and parts of Indonesia, the result has been resentment, malnutrition and lower levels of income. Where settlers have been free to alter cropping patterns (as in the cases of Zimbabwe and spontaneous settlement in Indonesia), evidence emerges of diversification and steady growth in incomes. A positive example of restrictions on cropping patterns occurs in Malaysia, where--except for the domestic garden plot--settlers had to grow the tree crops which FELDA had calculated to have the best market potential. These judgments have to date proved largely correct.

(i) *Provision of infrastructure and speed of construction*

Depending upon specific circumstances, certain types of infrastructure--roads and water supplies, for instance--have to be provided through some governmental agency. The evidence shows clearly that safe water supplies should be present when settlers move in, and roads should follow without much delay. All the experience shows that poor roads result in

restricted access to a wide range of services (as in Guatemala (Dunn, 1992)) and translate to higher costs and lower farmgate prices (as in Indonesia (Hardjono, 1977)). Roads have been particularly important components in frontier settlements and in settlement based on the reallocation of land from former estate or large-scale farming systems, where roads had been originally placed to serve only the central estate or homestead.

The emphasis that everything must be provided before settlers arrive and must be provided by the state is wrong. In Zimbabwe's Model A schemes, settlers have arrived a few months before the rains and faced the daunting tasks of clearing, preparing and planting the land while at the same time building houses and other structures. They also have molded bricks and contributed labor for public buildings like schools. In Zambia's Family Farms schemes, settlers built schools and raised funds to pay for teachers before the Ministry of Education provided them.

An excessively rapid pace of implementation of directed schemes has outcomes which are almost always negative.<sup>11</sup> The one exception here is in Malaysia, where concern grew that having settlers involved in all stages of implementation--clearing, planting, building, etc--was slowing down the pace of resettlement to an unacceptable degree. The response in the case of FELDA was to use contractors for much of the work in the development phase and to stipulate that half the contractors' casual employees had to come from the settlement scheme (Bahrin, 1988). Similar forms of contracting--for tractor-hire or building services, for example--can often be organized by the community itself, if settlers have the resources to do so. The experience of FELDA clearly points to the possibility of greater use of contractors in carrying out time-sensitive operations.

#### *(j) Access to and modality of supply of services*

*Extension.* All the evidence points clearly to a positive association between extension and agricultural success. In the earliest stages of Zimbabwe's intensive resettlement program, extension coverage was virtually universal among settlers and aided them to make a major

shift in production technology (Kinsey, 1987). A similar pattern can be found in Burkina Faso, even though the anticipated intensification of cropping did not materialize (McMillan, 1987). Coverage in Zimbabwe has subsequently returned to presettlement levels, probably reflecting a reduction in demand on the part of the settlers. In Guatemala, extension, has been very top-down and synonymous with management. It has assisted with adoption of new technologies but has been less helpful with adaptations to cropping systems (Dunn, 1992). Settlers in Indonesia received very little or no extension service, and they learned only from their neighbors about local cropping systems, pests and diseases (Fasbender and Erbe). The outcome has been long delays in devising suitable cropping models in areas where the assumed conditions did not exist to support the standard cropping models. In Ethiopia, also, extension services were almost nonexistent and were certainly ineffectual (NLSA, 1977; Chole and Mulat, 1988).

*Tillage services.* While there is evidence that tillage services may help to cope with a specific seasonal bottleneck or to assist settlers to overcome a conflict in timing of activities, there is no reason why these services have to be administratively provided. There are many options available. Assuming a hire-service sector exists, settlers may elect to contract-hire tillage services, as in Kenya and Thailand. Coupons could be provided to enable them to do so without taxing an administration with yet another responsibility. Groups may also purchase tractors and then hire them to neighbors and others. There should be no administrative barriers to any of the possible options.

*Transport.* Precisely the same arguments apply to transport services as to tillage services.

*Marketing.* In general, the nature of the marketing system needed to facilitate success is related to, first, the crop or crops grown and, second, the destination. There are three broad patterns. The first involves central processing, often with credit recovery tied to marketing. Two crops in this category are oil palm and sugar cane. Second are fruits and vegetables for long-distance marketing. In Guatemala, settlers growing horticultural products operated

successfully with a contract farming system (Dunn, 1992). The same has been true of small-scale growers in Kenya (Schapiro and Wainaina, 1989). Marketing cooperatives can also work in these circumstances, although intensive cooperative development support must be anticipated for some time. Finally, in the case of grains and subsistence crops, and of fruit and vegetables for local markets, no marketing problems are likely to emerge.

Malaysian settlers, growing for the export market, have had their crops processed centrally on the schemes and successfully marketed by specialized agencies. In Guatemala, by taking marketing out of the hands of the settlers, the authorities are creating an organization that will not be able to leave even when the time has come for it to do so. Zimbabwe's experienced marketing parastatals have generally proved efficient in handling the crops of settlers.

*Credit.* Credit can be considered under two categories, that for land purchase and that for other purposes.

Where credit has been made available for land purchase with no grant element included, efforts to recover the full cost universally failed. There is large-scale default and a consequent withholding of title. Thus there must be a substantial grant component in the program to provide for the missing equity of many poor beneficiaries, although own-equity can play a part in the purchase of land of the not-so-poor. Credit can then be employed to top up settlers' resources, therefore assisting settlement to serve both the poor and those more asset-rich. The two approaches can also be successfully combined.

Credit for other purposes also has a poor recovery record. In Costa Rica, all recovery was poor. In Guatemala, FUNDACEN itself recovers loans, but it is too early to judge overall patterns. In the Indonesian program, where the program itself administers credits, recovery is bad, at least during the first 5-year period (Otten, 1986; World Bank, 1988). The Malaysian experience has generally been positive, since all credit recovery can easily be linked to marketing (Bahrin, 1988). Credit in Malaysia has been used to support tree crops

with long maturity periods. Payback periods have therefore been correspondingly long. In Zimbabwe, after a short trial period, the pre-existing credit system has been used, but defaults caused by drought mean that many settlers have now been outside the formal credit system for almost a decade (Zimbabwe, 1992).

Alternatives to institutional and other credit also need to be considered. For example, in Indonesia, it was only the fact that many spontaneous settlers were able to work as wage laborers that enabled them to accumulate enough assets to begin farming on their own behalf (Hardjono, 1986). Some sort of arrangement like this will be critical in many cases if asset accumulation or funding of seasonal inputs is to be possible. In the second phase of Zimbabwe's intensive resettlement program, for example, the previously strict prohibition against off-farm employment has been relaxed considerably, in part in order to allow settlers who have fallen out of the institutional credit net to meet their own needs for funding.<sup>12</sup>

Settlers must have surpluses on a continuing basis if recovery is going to be possible. If commercially viable crops are grown so that credit is not burdensome, recovery is not a problem. Recovery of credit through output marketing has been the most successful approach.

*Irrigation.* There are two possibilities for resettlement based on irrigation. The first of these is to subdivide existing irrigation schemes. The second possibility is to create new irrigated resettlement schemes. There have been highly successful examples of irrigation investment for land reform beneficiaries—Mexico, for example— but none we have identified involved subdivision of existing irrigation schemes or resettlement over long distances. Irrigation is represented in the cases of Zimbabwe, Kenya, Indonesia and Ethiopia. Experience in these countries shows three things clearly. First, it is better to create irrigation schemes first, and then parcel them out as a second stage. It is a mistake to allocate land holdings on the assumption that irrigation will go in, when—as in the cases of Ethiopia and Indonesia—the necessary pumps and equipment are not provided or the area is subsequently judged unsuitable for irrigation (NLSA, 1977; Oey and Astika, 1978). The

second characteristic of irrigation in resettlement schemes thus demand even more effective extension services than rainfed farming (Clayton, 1978; Stanning, 1984; Rukuni, 1988; Wakjira, 1977). Finally, irrigated resettlement projects have tended to withhold secure rights to land and to maintain settlers on short-term, renewable tenancies, particularly in state-sponsored projects in Africa.

#### *(k) Social services*

The approaches to the provision of social services in settlement programs are so varied and performance is mixed.

In Tanzania, the provision services such as clean water, primary education and health services was the primary justification for the massive villagization program. In this case, the improvements made have had significant positive benefits, albeit at a very great economic and social cost (Oberai, 1988b). In other cases, such as Kenya, Ethiopia and the Brazilian Amazon, there is evidence that settlement increased the need for services such as health because the resettlement process itself heightened exposure to diseases, raised the incidence of malnutrition and increased the rate of child mortality (Clayton, 1978; Wood and Schmink, 1979; Goldwater, Colchester and Luling, 1986; Woldemeskel, 1989; Dejene, 1990). The failure of settlement to provide safe water supplies is also strongly associated with increased health risks.

In education and educational facilities, many opportunities exist for the participation of settlers in the provision of facilities and services. In many of the cases, notably Zambia and Zimbabwe, settlers have displayed a ready willingness to contribute to the provision of their own social overheads.

We have found no such clear-cut instances where housing can be justified as a social overhead. Settlers in most cases appear more than willing to build housing for themselves, although materials grants are often needed. If such grants are provided, they are more likely

to make a strong impact at the very beginning of a project.

(l) *Resource base*

Settlement projects on good soils and in areas with adequate moisture to grow crops have often been very successful. Where soil and climate have been marginal, as in certain parts of Indonesia, Ethiopia, Zimbabwe and the Brazilian Amazon, outcomes have been poor. In marginal areas, especially when they are remote, only very strong communities are successful. For example, the Mennonites, a cohesive, motivated community who possess a long-term perspective and who can tolerate the isolation and the slow build-up to reasonable levels of living have successfully colonized the semi-arid Chaco of Paraguay. There is also evidence from Zimbabwe that provision of irrigation in resource-poor areas is likely to amount to little more than a costly but futile attempt to circumvent the limitations of the environment (Kelly, 1972; World Bank, 1984).

(m) *Cost per beneficiary family*

If all costs--public and private--are factored in, then the full costs of resettlement are likely to be far higher than many studies have estimated. In spontaneous settlement particularly an enormous amount of work is done by the beneficiaries themselves. The capitalization of settler effort into land improvements, housing and infrastructure should be valued appropriately, encouraged and taken into account in settlement programs. If a large grant element is included in the allocation of land to settlers, the public cost will be especially high. The critical, and largely unresearched, issue here appears to be that of the minimum public investment needed to stimulate a private investment response of the beneficiaries.

The studies examined provide no direct evidence that higher public costs per beneficiary family are significantly associated with performance outcomes. One school of thought on this issue is encapsulated by the World Bank's 1978 review of settlement which concluded that complex and costly projects are no more likely to succeed than more modest ones and

that project success is not closely correlated with government outlays per beneficiary, even though a threshold level of physical infrastructure and social services will be needed. In contradiction to this conclusion is that arising from the more-limited review conducted by Gosling and Abdullah (1979), which led the authors to state that land settlement requires heavy levels of investment and the greater the investment the greater are the chances of success. This conclusion however does not appear to be based on actual cost comparisons.

#### *(n) Grant elements in settlement programs*

The extent of grants varies widely. In Zimbabwe or Ethiopia settlers made no contribution to either the land costs or the development costs. In Indonesia, Malaysia, Kenya, Zambia and Guatemala these costs are treated as credit. In Indonesia they are not recovered, so they amount to a de facto grant.

For given settlement budget allocations, larger grants reduce the number of beneficiaries. Excessive grant elements also foster dependency and paternalism. However, we have seen that where land is acquired at market prices, a grant element is necessary to provide poor beneficiaries with the necessary equity to engage in risky agricultural production and to stand a chance of recovering the credit provided to them. And some grant elements may be essential, such as for initial subsistence, technical assistance, and perhaps building materials. The proper mix of grants and credit, therefore is a compromise among several competing objectives.

#### *(o) Cost recovery*

Recovery of land loans has been poor, except in Guatemala and Kenya, and Malaysia. In Malaysia, the time taken for full recovery has been in excess of 20 years. The pattern for recovery of seasonal production credit is almost universally bad except where recovery of loans is linked to output marketing. A positive exception is the experience with credit in Zambia, where settlers paid ground rent and had to open an account with a commercial bank



in order to obtain loans and had to deposit one-third of the amount of any loan before it was disbursed. Recovery was on a voluntary repayment basis, while the penalty for nonrepayment was loss of the deposit and further credit facilities (Bromford 1973).

*(p) Settler groups*

A great deal of evidence points to the conclusion that the emergence of strong, self-reliant groups among settler communities is a vital ingredient in ensuring the sustainability of settlement programs. We know from experience in Bolivia and Brazil that where settlement has been carried out by pre-existing groups it has had more positive outcomes than when done otherwise. In some cases, groups have been discriminated against. In Malaysia, for example, settlers who proposed group-based institutions to meet their own needs were regarded as disruptive by FELDA staff (Bahrin, 1988). In Zimbabwe, the only way a group could choose to be resettled as a group was to opt for the collective cooperative model of settlement rather than the more popular pattern of individual holdings grouped around nucleated villages (Zimbabwe, 1981). Where the creation of groups has been imposed--as with the farmers' associations in Ethiopia--outcomes have been almost universally negative (Dunning, 1970; Chole and Mulat, 1988).

The literature however reveals very little about the process of group formation in those cases where groups did not exist prior to settlement. In Kenya, studies of settlement schemes were done almost entirely by economists and even these ceased within a short period after the bulk of the settlement process had been completed.<sup>13</sup> We thus do not know much about whether organizations are forming during the resettlement process itself, how they form, what they do or how they contribute to the success of settlement efforts. It would be useful now to revisit some of the settlement sites in Kenya, and perhaps other areas of established settlement as well, to investigate these issues.

### 3. CONCLUSIONS

A number of propositions appear to be fairly firmly established linking core characteristics of resettlement to specific outcomes. These general results on settlement characteristics are useful in avoiding costly mistakes in the initial design and establishment of settlements. We concur with Cook and Mukendy (1992) that the literature offers few clear guidelines for specific additional actions and their sequencing which would assist settlements in their long term development. The main lessons from this review are:

- ▶ Directed schemes are designed on the premise that 100 percent of settlers will or should be successful. Such outcomes never materialize. Instead, schemes should be designed with the flexibility to anticipate that some settlers will leave, whether because of failure or other reasons. Thus constraints on sale, leasing and other forms of reallocation should not be imposed as they create inefficiencies.
- ▶ Most programs have erred toward too much administration. Too much emphasis has been given to centralized models of settlement in contrast to supporting spontaneous settlement, to greater local and community participation and responsibility, and to shared implementation based on contracting. If resettlement is not decentralized, it cannot be flexible. Settlement agencies tend to adopt--implicitly or explicitly--infinite horizons for implementation, so that resettlement is never "finished" and areas are returned to local administrations only after a very long period of time, if ever.
- ▶ The assumption has frequently been that every element in resettlement programs must be provided to the settlers, and usually provided before they arrive. Very little research however has been done on the sequence of activities and the minimum level of public sector investment needed to generate a sufficient private and community investment response. The elements of a minimum public sector package appear to include: safe water, roads, relatively good land, extension, and subsistence allowances. About education and housing, however, we can say little.

- ▶ The capacity of settlers to generate capital has often been seriously underestimated.
- ▶ Settlements will be more successful if farm sizes are adjusted to agricultural skills experience, the family labor force and the capital available to the settler families. Higher educational levels on the part of settlers will further enhance outcomes.
- ▶ Land rights must be clearly defined as ownerships or long term leases, and settlers should be allowed to sell or rent out their land to other settlers.
- ▶ Some grant finance is required to provide poor settlers with the equity necessary to engage in risky own account farming and repay the remaining credit grants for initial subsistence; technical assistance is also required.
- ▶ Paternalistic constraints on crop choice, technology, marketing or labor market participation are either not enforceable or have adverse impacts on settlement success.
- ▶ Settlements based on collective cooperatives do not work. Such programs have broken down everywhere they have been tried.

## NOTES

1. The large literature on the experience with planned settlement in Africa alone contains numerous examples of programs judged to have been unsuccessful in many, if not most, dimensions. See, for example, Lewis, 1954; Hilton, 1959; Christodoulou, 1965; de Wilde *et al*, 1967; Moris, 1968; Chambers, 1969; Takes, 1975; World Bank, 1978; Hansen and Oliver-Smith, 1982; Reining, 1982; Kinsey, 1982 and 1983; Leo, 1984; Scudder, 1984; McMillan, 1987; and Cook and Mukendi, 1992.
2. In utilizing the concept of a sequence of stages in the development of resettled areas, Nelson (1973) maintains that the stages are generally of longer duration than most analysts. He describes three stages in the development of successful settlements:
  1. The pioneer stage (5-10 years), during which settlers move into an area and establish basic life-support systems such as water, food, shelter and access to consumption goods, markets and credit.
  2. The consolidation stage (5-10 years), during which community organizations, educational and health services, transport improvements, and permanent housing are established and better use is made of landholdings and credit.
  3. The growth stage (duration unspecified), during which farms are capitalized, permanent agricultural systems are established, related agro-industries are developed, credit becomes generally available, and supply and marketing systems are firmly grounded.
3. See, for example, the cases of Ethiopia as documented by NLSA (1977) and Zimbabwe as recounted by Akwabi-Ameyaw (1990). A similar pattern of failure occurred on the communal plots in Tanzania's ujamaa villages (Oberai, 1988b).
4. Four resettlement models have been used in Zimbabwe: Model A—smallholder farming based on individual allocations of arable land, communal grazing land and nucleated villages, Model B—collective cooperatives, Model C—satellite production around a core estate, and Model D—an experiment to explore options for livestock-based resettlement.
5. Most of the literature dealing with this theme which we reviewed in the preparation of this paper dealt with the issues of resettlement for pastoralists and the management of common grazing lands. See, for example, Oxby (1984) and Adams and Devitt (1992).
6. See Ireson (1987) and Heath (1992) for analyses of the consequences of Mexico's long land reform program.
7. C. P. R. Nottidge, personal communication.
8. This prohibition has recently been relaxed in response to twin crises. First, most settlers in the early years of the program received institutional credit but subsequently defaulted under the strain of the successive droughts of 1982, 1983 and 1984. They have thus been ineligible for further loans from the agricultural credit agency. Second, the severe drought in the 1991/92 season meant that many settler households were unable even to feed themselves and had to liquidate assets in order to purchase food. Condoning off-farm work to allow farmers to acquire operating capital, rebuild assets and procure food was therefore a prudent reaction to a situation the remedy for which was beyond the scope of the state's resources.

9. If there is no reconciliation and negotiations become stuck in stalemate, this is what may very well happen in South Africa.

10. For a good example, see the discussion of the Indonesian transmigration program in Kebschull (1986) and Fasbender and Erbe.

11. See Wakjira (1977) for the extreme example of an over-zealous pace of implementation in Ethiopia.

12. The prohibition may also have been relaxed because it was difficult or impossible to enforce. Adams (1991), for example, reports that on one resettlement scheme 48 percent of women engaged in off-plot employment at a time when the prohibition was still intended to be in effect.

13. See, for example, the later studies by Clough (1968) and von Haugwitz (1972) which are largely based on the farm management survey work done in the mid-1960s.

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